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No. 180

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ACTA BOTANICA SINICA

AUTHOR: LI P'i-hu [2621 1801 3275]

ORG: Ch'ien-yang Agricultural School, Hunan

TITLE: "How We Studied Hybrid Rice"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 19, No 1, Mar 77 pp 7-10

TEXT OF ENGLISH ABSTRACT:

In 1964, we some young teachers and students in C-Y Agricultural School began to study "Three Lines" in rice (the male sterile line, the maintainer line and the pollen fertility recoverer line). In 1964—1965, we found six natural male sterile plants, but had not found an good maintainer line until 1970. Since then, under the steady leadership of our party and sincere concern by Chairman Hua Kuo-feng, the whole country has launched a vigorous mass movement of breeding "Three Lines" in rice and developed socialist cooperation. We have brought the spirit of self reliance and hard struggle into full play. On the basis of discovery of wild male sterile line in rice, we did numerous cross experiments with the rich resources of rice varieties in our country. In 1972, the maintainer line and the male sterile line were discovered and in 1973, the pollen fertility recoverer line was found. Thus we succeeded in the "Three Lines". During 1974—1976, by experimental plot, demonstrative planting and populization over wide areas, good result was finally obtained and the output of

[continuation of CHIH-WU HSUEH-PAO Vol 19, No 1, Mar 77 pp 7-10

rice increased by 20—30%. This is not only a new way to increase the output by a big margin, but also enrich the theory and practice in plant genetics and breeding.

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ORG: All of the Institute of Plant Protection and Tsinghai Academy of
Agriculture and Forestry

TITLE: "Acceleration of Maturity and Translocation of Substances in Cereals
by Sodium Ethylxanthate"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 19,
No 1, Mar 77 pp 11-19

TEXT OF ENGLISH ABSTRACT:

Field experiments in 1970—1975 showed that application of 0.75—1.00% of sodium ethylxanthate at the late milk-ripe stage by a foliar spray increased the water loss from the grain and hastened the yellow-ripe processes without any significant effect on the grain-filling processes of the cereals. The treatment caused an earliness in spring wheat, winter wheat, barley and rye for 5—7 days. The 1000-grain weight was decreased by 5% or was increased slightly depending on the locality and the cultivar used.

There was no adverse effect on grain characters and its germination capacity by the treatment of sodium ethylxanthate. The crude protein content of the grain was

[continuation of CHIH-WU HSUEH-PAO VOL 19, No 1, Mar 77 pp 11-19]

slightly increased whereas the starch content was decreased by the treatment.

It was considered that the accelerated loss of water from the grain and rapid accumulation of dry matter in the grain may be responsible for the earlier maturity of cereals by the treatment of sodium ethylxanthate.

Effects of sodium ethylxanthate treatment on the translocation and accumulation of materials in cereal grain during maturation were studied with $^{14}\text{CO}_2$ as a tracer. The results showed that under the influence of sodium ethylxanthate, the mobile sugars were increased in stems and leaves, and the translocation of assimilates to the grains as well as the accumulation of dry matter in the grain were not affected.

AUTHOR: None

ORG: Research Group of Ethylene, Laboratory of Phytohormone, Shanghai Institute of Plant Physiology

TITLE: "The Accelerating Effect of Ethrel on the Opening of Cotton Bolls"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 19, No 1, Mar 77 pp 20-24

TEXT OF ENGLISH ABSTRACT:

In the course of maturation of cotton bolls spraying with ethrel (200—2000 ppm) on cotton plant has a marked hastening effect on ripening. The bolls of treated plants cease to grow, rapidly mature and dehisce to emit fibers. For the fully grown bolls (middle and lower fruiting branches of cotton plants) both the boll weight and fiber quality are slightly improved, while for the rapidly growing bolls (upper fruiting branches.), the boll weight decreases. At the same time the leaves, flower buds and young bolls (less than 10 days old) shed. The higher the spraying concentration the more rapid and stronger the accelerating effect. At the time of spraying, the presence of too many young bolls and the use of an excess concentration, will effect both the yield and quality of cotton. Based upon the experimental results, a rational application of ethrel for the purpose of hastening the ripening of the cotton bolls has been proposed.

AUTHOR: None

ORG: Research Group of "Three Lines" in Rice, Department of Biology, Kwangsi Teachers' college

TITLE: "Determination of Proline in the Anther of 'Three Lines' and Hybrid of Rice"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 19, No 1, Mar 77 pp 25-27

TEXT OF ENGLISH ABSTRACT:

We have studied biochemically the "Three Lines" (the male sterile line, the maintainer line and the pollen fertility recoverer line) and found that proline in the sterile anther is lower than that in control. Thus the retardation of sugar metabolism and the decrease of amino acid may be one of the important factors responsible for male sterility of rice.

AUTHOR: None

ORG: Faculty of Botany and Plant Physiology, Department of Agronomy,
Shantung College of Agriculture

TITLE: "Cytomorphological Observations on Ethrel Induced Male Sterility in
Wheat"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 19,
No 1, Mar 77 pp 28-33

TEXT OF ENGLISH ABSTRACT:

Treated with Ethrel at the concentration of over 3000 ppm at four different stages of the pollen development in wheat, our experimental results showed that Ethrel was very effective in inducing male sterility for the three earlier stages in Pai-yu-bao whereas it was ineffective for Tai-shan No. 1.

Four types of anther and pollen development were found after the treatment with Ethrel: anther without pollen, anther with abortive pollen, anther with mixed pollen and anther with 3-nucleate pollen. In former three cases, the degree of sterility was rather high while in the last the degree of sterility was low and it was useless in production. The last type of development appeared in Tai-shan No. 1 and Pai-you-bao treated with Ethrel at the stage of 2-nucleate pollen.

No abnormality was observed in the development of the tapetum in anther without

[continuation of CHIH-WU HSUEH-PAO Vol 19, No 1, Mar 77 pp 28-33]

pollen and anther with mixed pollen. In anther without pollen the tapetum and pollen became abortive simultaneously. It seems that there is no causal relation between them.

AUTHOR: None

ORG: Laboratory of Rice Ecology, Kwangtung Academy of Agricultural Science

TITLE: "The Relation Between LAI, Leaf Openness and Solar Energy Utilization in Rice"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 19, No 1, Mar 77 pp 34-40

TEXT OF ENGLISH ABSTRACT:

Using medium maturing varieties of early rice from Kwangtung province as materials (Pearl dwarf etc.) and by method of varietal comparison, we have made investigations on some physiological and ecological factors which affect rice yield. On the basis of experimental results obtained in our laboratory some approaches of increasing the efficiency for solar energy utilization and the application of these results to rice breeding, reform of cultivation system and high yielding culture measures have been discussed.

Our experimental results obtained in 1974 and 1975 showed that a significant positive correlation is present between rice yield and the sum of leaf area indices (LAI) at young panicle differentiation, full (80%) heading stage and 20 days after full heading stage. In case of LAI values less than 6, there is also a significant positive correlation between canopy net photosynthesis rate and LAI. In case where

[continuation of CHIH-WU HSUEH-PAO Vol 19, No 1, Mar 77 pp 34-40]

LAI values are higher, those varieties with little leaf openness all give more grain yield than variety with greater leaf openness (except for one variety lodging). In 1974 the total solar energy during the 90 days after transplanting was more than that in 1975, and the average grain yield in 1974 was also higher than that in 1975. The relationship between rice yield and LAI, leaf openness, solar energy can be expressed by a linear regression equation with three arguments. Using the method of so-called "cyclic prediction" (an unpublished new method) to examine the exactness of such a regression, the average error between calculated and actual values of rice yield is 2%, the maximum error is 5%. This indicates that the above three are indeed important factors affecting rice yield.

AUTHOR: None

ORG: Research Group of Flowering Physiology, Laboratory of Phytohormone, Shanghai Institute of Plant Physiology

TITLE: "Inhibition of Bolting in Autumn Sown Sugar Beet with Maleic Hydrazide"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] In Chinese Vol 19, No 1, Mar 77 pp 41-46

TEXT OF ENGLISH ABSTRACT: Cultivation of sugar beet in the central and southern parts of the country was a new thing during the Proletarian Cultural Revolution and is one of the most promising ways for developing our sugar production.

In the Yang-tze River area, it is practicable to grow sugar beet in the autumn, overwinter in the field and harvest in the next spring for the purpose of avoiding seasonal competition with cereal crops. In general, however, overwintered beet plants always bolt and have to be harvested before the beginning of April because bolting cuts down sugar content significantly and also makes processing difficult due to lignification of the roots. Inhibition of bolting may result in extension of growth period of the crop so that higher yield of root and sugar can be obtained.

According to the results of experiments carried out in the last three years in Shanghai, Kiangsu, Chekiang and Hunan, it has been proved that bolting of overwintered autumn sown sugar beet can be effectively retarded by

[continuation of CHIH-WU HSUEH-PAO Vol 19, No 1, Mar 77 pp 41-46]

foliar application of maleic hydrazide at the concentration of about 0.3%, 7-10 days before bolting. With this method, the harvest time can be delayed about one month.

Examination of the actual benefit of this method was made for the first time in the field of Miloo River Farm of Hunan province in this spring. Harvest time was delayed 24 days with MH treatment. The yield of beet roots per *mu* and total content of sugar per *mu* calculated according to the sugar content of the beet roots at the harvest time, are both increased remarkably as compared with that of the control.

Residue of MH in the beet roots, determined one month after treatment with 0.4% MH solution, is only 1.7 ppm. It is reasonable to suppose that the residue of MH in sugar should be negligible.

AUTHOR: None

ORG: Agricultural Bureau and The Revolutionary Committee of Yen-pai-tu Commune, Tz'u-li County, Hunan

TITLE: "Observations on the Growth and Development of the Parents in Hybrid Rice"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 19, No 1, Mar 77 pp 47-52

TEXT OF ENGLISH ABSTRACT:

The growth and development of the parents in hybrid rice under the autumn conditions have been investigated. The observations include the growth and development phases, the growth of leaf blade, the florescence and time of flowering. The problems concerning the safe pollination time for successful fruiting and simultaneous blooming period for both maternal and paternal parents have been rather well solved, and we used the techniques such as the increase of pollen production in paternal parent line and of the effective spikes, the grain number per spike and the rate fructification in maternal parent line etc. to raise the yield of the seed field of ten thousand *mu*.

AUTHOR: None

ORG: Nanking Institute of Agricultural Science

TITLE: "Temperature-Light Reaction and Safe Sowing and Transplanting Time of Late Variety of Rice"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 19, No 1, Mar 77 pp 53-59

TEXT OF ENGLISH ABSTRACT: Due to delayed sowing and transplanting and late earing of the late season, rice is easily damaged by low autumn temperature, resulting in empty seeds and decreased yield. Too early sowing and earing would result in small ears and decreased yield due to insufficient vegetation period. Climatic conditions differ from year to year, thus making it difficult to determine the proper sowing and transplanting time of any one year. By the use of statistical analysis we arrived at a temperature-light formula for calculation the duration of growth period in different varieties of late season rice. Using this formula, one may analyze climatic data for a period of many years to obtain safe sowing and transplanting time in different varieties of late season rice for any particular year.

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ORG: Department of Biology, Lanchow University

TITLE: "Effect of CCC on Distribution of ^{14}C -Assimilates and Activity of Starch Synthetase During Grain Filling Period in Wheat"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 19, No 1, Mar 77 pp 60-64

TEXT OF ENGLISH ABSTRACT:

The distribution of ^{14}C -assimilates and the activity of starch synthetase during the grain filling period in wheat treated with 0.25% CCC were determined. The results showed that treatment with CCC at tillering stage influenced the distribution pattern of ^{14}C -assimilates and the activity of starch synthetase differently at different stages of the grain filling period. Application of CCC retarded the movement of ^{14}C into the grain and reduced the incorporation of ^{14}C into the acid hydrolyzable fraction of the grain at the early stage but accelerated both of them at the later stage of grain filling period. Assays of starch synthetase activity indicated that CCC inhibited the activity of the enzyme at the early stage but promoted its activity at the later stage of the grain filling period. The significance of these findings is discussed in relation to the increase in sink capacity of the grain and to the increase in grain weight.

AUTHOR: None

ORG: Department of Basic Agriculture, Peking Teacher's College

TITLE: "Organ Formation in Wheat in Relation to Manuring and Watering"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 19, No 1, Mar 77 pp 65-71

TEXT OF ENGLISH ABSTRACT:

We studied the growth, morphology and yield of wheat in relation to manuring and watering. The results obtained were as follows:

1. The bigonovs stage is the critical period for increasing spikelet number and effective tillers.
2. The floret differentiation stage is an important period for retaining flowers and increasing grain number.

When bloret reached the stage of stigma differentiation, almost all of them could develop into fertile flowers, so that stigma differentiation was enhanced and its growth period was prolonged. Therefore the number of sterile florets was decreases.

3. It has been found that there is a correlation among the leaves, stems and spikes in growth, According to the gross morphology, the stimulative effects of manuring and watering on the particular organs may be predicted.

[continuation of CHIH-WU HSUEH-PAO Vol 19, No 1, Mar 77 pp 65-71]

4. At the shooting up stage in early spring, application of manure and water will promote the elongation of second and fourth leaves, first and second basal internodes. This is the most suitable time for raising effective tillers. But inappropriate application of them may cause lodging.

5. At the shooting stage, manuring and watering will promote the elongation of fourth internode and that below the spike. This measure can prevent florets from degeneration.

AUTHOR: HO Yueh-ming [0149 2588 2494]
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ORG: Ho of 915 Geological brigade, Kiangsi and Sun of the Peking Institute of Botany, Chinese Academy of Science

TITLE: "Palynological Investigation of Palaeogen in the Ch'ing-chiang Basin in Kiangsi Province I."

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 19, No 1, Mar 77 pp 72-82

TEXT OF ENGLISH ABSTRACT: Sediments of palaeogene period accumulated in the Ch'ing-chiang Basin of Kiangsi province are divided into two successional formations, the upper Lin-chiang and the lower Ch'ing-chiang formations. Both are mainly of lacustrine in origin. In these sediments numerous spores and pollen are well preserved. The palaeogene flora of that region is very rich, in which 147 palynomorphs of 66 families have been identified. One new genus Rutaceipollenites and 9 new species namely Rutaceipollenites archiacus, Sapotaceoidapollenites tricolporatus, Lonicerapollis scabratus, Quercoidites minor, Tricolporopollenites aspidoporus, Tricolporopollenites minutus, Boehlensipollis qingjiangensis Poentapollenites, and Jiangsiensis are described. The palynological features of these formations are stated as follows:

1. The lower part of Ch'ing-chiang formation is characterized by the pre-

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dominance of Ephedra. Because of the occurrence of Schizaeisporites, Aquilapollenites, Extratriporopollenites and pentapollenites, the age of this part is, therefore assigned to late paleocene-early Eocene, and the flora at that time seems to be of desert in nature. The climate was warm and dry.

2. The upper part of the Ch'ing-chiang formation is predominated by Tricolporopollenites minutus, Quercoidites minor and pollen of sapindaceae and Ulmaceae, which indicates that the flora was subtropical and tropical in nature. The climate then changed to humid and hot. The age of this part is assigned to middle-late. Eocene.

3. The Lin-chiang formation is predominated by the pollen of Taxodiaceae and some abundant subtropical and tropical elements. These features indicate that at the time some coniferous and broad-leaved mixed forests would have been flourishing on the hills of that region. The climate was then humid and warm. The age of the Lin-chiang formation is assigned to early Oligocene.

AUTHOR: None

ORG: Yunnan Institute of Botany, Te-hung Chou Institute of Agricultural Science, K'un-ming Pharmaceutical Factory, K'un-ming Medical College

TITLE: "Guizotia Abyssinica-----An Oil Plant with a Great Future"

SOURCE: Peking CHIH-WU HSUEH-PAO [ACTA BOTANICA SINICA] in Chinese Vol 19, No 1, Mar 77 pp 83-87

TEXT OF ENGLISH ABSTRACT:

Guizotia abyssinica (L.) Cass., the famous oil seed plant origin endemic to Ethiopia has been newly introduced from abroad and successfully propagated in different localities of Yunnan province. Botanical, phytochemical, pharmacological and cultural studies have been investigated on this plant.

The experimental results show that *Guizotia* is a plant with wide adaptability. It is suitable for planting on the red soil hillocks throughout the Yunnan plateau, and technique of cultivation is simple. The oil content of seeds is rather high, and its fatty acid component is essentially linoleic acid. It may be used as edible oil. The pharmacological experiments on animals indicated that the oil can also be used as a certain remedy for arteriosclerosis. So, *Guizotia abyssinica* is an oil plant with

[continuation of CHIH-WU HSUEH-PAO Vol 19, No 1, Mar 77 pp 83-87]

a greay economical future. We plan to cultivate it extensively in our province, as well as other southern provinces.

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CSO: 4009

AUTHOR: None

ORG: I-feng County Institute of Agricultural Science, Kiangsi

TITLE: "Encouraging Achievements Obtained in Hybridization of Paddy Rice and Reed"

SOURCE: Peking CHIH-WU HSUEH-PAO [Acta Botanica Sinica] in Chinese Vol 19, No 1, Mar 77 pp 88-89

ABSTRACT: The reed (Phragmites communis, Trin. var. longivalvis) has various advantageous attributes such as resistance to cold, drought, flooding, pests, and poor soil, thick stems, large spikes, numerous flowers, and a developed root system, which might be of great benefit to paddy rice if imparted through hybridization. The hybridizing experiments described here in detail were begun in 1970. Although an effective means of overcoming the severe problem of progeny segregation has not yet been found, there has not yet been time to conduct cytological observations.

AUTHOR: None

ORG: Hai-feng County Institute of Agricultural Science, Kwangtung

TITLE: "Distant Hybridization Between Rice and Bamboo"

SOURCE: Peking CHIH-WU HSUEH-PAO [Acta Botanica Sinica] in Chinese Vol 19, No 1, Mar 77 pp 90-92

ABSTRACT: Discussion of the hybridization process covers the laws of bamboo flowering and prolonging its flowering period, solving the problems of cross-pollinating rice and bamboo, and mother parent selection. Also discussed are cultivation of the bamboo-rice hybrid and genetic variations of progeny, as well as prospects for selection and utilization of distant bamboo-rice hybrid progeny. Through backcrossing and multiple crossing it may be possible to gradually breed new strains and varieties which spike and fruit normally.

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ORG: All of Peking Institute of Botany, Chinese Academy of Sciences

TITLE: "Induction of Callus in Vitis Endosperm Cultured in Vitro"

SOURCE: Peking CHIH-WU HSUEH-PAO [Acta Botanica Sinica] in Chinese Vol 19, No 1, Mar 77 pp 93-94

ABSTRACT: The purpose of the experiments was to induce production of a triploid plant through Vitis endosperm culture in searching for a new means of producing seedless fruit. Paper discusses the relationship between the seed development period and endosperm callus induction, induction requirements and conditions, and embryonic function during endosperm callus formation. As the endosperm callus is produced, the substance already stored in the endosperm cell is completely converted to soluble form and consumed, making possible the building of the endosperm callus; this may be of significance in studies of endosperm cell differentiation and counter-differentiation.

AUTHOR: None

ORG: Phytohormone Research Group, Sixth Laboratory, Peking Institute of Botany, Chinese Academy of Sciences

TITLE: "Effects of Auxin and Kinetin in Populus Sp. Callus Differentiation"

SOURCE: Peking CHIH-WU HSUEH-PAO [Acta Botanica Sinica] in Chinese Vol 19, No 1, Mar 77 pp 95-97

ABSTRACT: Differentiation experiments were conducted with successive generations of cultured calluses of the Japanese white poplar and Populus tomentosa Carr to investigate the effects of plant hormones in cultures of ligneous plant tissues. Basic culture medium was that of C. O. Miller, with varying combinations of NAA (naphthylacetic acid), BAP (6-benzyl aminopurine), and K (kinetin). Effects of different concentrations of NAA, BAP, and K on tissue growth and differentiation, effects of soaking in hormone solutions on callus shoot and root formation, and forming of small plants are discussed. Most suitable combination for shooting in Japanese white poplar was 0.5-1.0 mg/liter NAA and 0.5 mg/liter BAP. Increasing NAA concentration and reducing BAP concentration caused

[continuation of CHIH-WU HSUEH-PAO Vol 19, No 1, Mar 77 pp 95-97]

callus to form roots, and increasing the K concentration was beneficial to root formation, although K produced no effect in shoot formation experiments.

11310

CSO: 4009

ACTA ENTOMOLOGICA SINICA

AUTHOR: LI Tien-mo [2621 0368 3351]
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ORG: Peking Institute of Zoology, Chinese Academy of Science

TITLE: "Studies on the Phototactic Behaviour of Noctuid Moths: Change in Reflecting Power of the Compound Eyes and an Analysis of the Trapping Probability"

SOURCE: Peking K'UN-CH'UNG HSUEH-PAO [ACTA ENTOMOLOGICA SINICA] in Chinese Vol 20, No 2, May 77 pp 128-134

TEXT OF ENGLISH ABSTRACT:

After entering the dark, the reflecting power of the compound eyes of *Heliothis assulta* (Guenée) increased in very different rates among different individuals. In some of them, the reflecting power reached the maximum after one hour, while in most of them it took 1.5—2.5 hrs. Rarely would take more than 2.5 hrs. to reach the maximum.

The reflecting power of the central portion of the night eyes at the axis of incident light is about 62 to 80.9 times (73 on average) greater than the day eyes. The night eyes of *Heliothis armigera* (Hübner) exhibited a great decrease in its reflecting power after 10 min. illumination by 405 nm, and a lesser decrease by 554 nm and 671 nm. The different effects of these wave lengths on the night eyes agree

[continuation of K'UN-CH'UNG HSUEH-PAO Vol 20, No 2, May 77 pp 128-134]

with their attractiveness to the moths, 405 nm being most attractive, 554 nm and 671 nm less attractive. However, the effects of 436 nm and 466 nm on the night eyes were the same as that of 405 nm, although their attractiveness are slightly weaker than the later. From the results of the experiments, the lamp-trapping probabilities for the two species have been discussed.

AUTHOR: None

ORG: Bureau of Science and Technology, Bureau of Agriculture, Institute of Agricultural Research, and Ch'eng-chiao People's Commune, Hsin-feng County, Kwangtung Province; Bureau of Science and Technology of Shao-kuan Prefecture, Kwangtung Province; and the Institute of Plant Protection, Kwangtung Academy of Agricultural Sciences

TITLE: "Preliminary Report on the Integrated Control of Rice Insect Pests and Diseases"

SOURCE: Peking K'UN-CH'UNG HSUEH-PAO [ACTA ENTOMOLOGICA SINICA] in Chinese Vol 20, No 2, May 77 pp 135-140

TEXT OF ENGLISH ABSTRACT: In 1974 a program of integrated control of rice insect pests and diseases was exercised in five Production Brigades of Hsin-feng County by five groups of measures. This work was carried out under the direction of the Party Committee of the County and through the combined action of the four-level network of scientific experiment. The measures used were as follows:

1. Utilization of *Tetrastichus* spp. to control *Tryporyza incertulas* and *Trichogramma* spp. to control *Cnaphalocrosis medinalis* and *Naranga aenescens*.
2. Utilization of *Beauveria bassiana* to control *Nephotettix bipunctatus cincticeps*.
3. Conservation of natural enemies of pest insects including *Verania dicolor*, *Synharmonia octomaculata* and spiders.

[continuation of K'UN-CH'UNG HSUEH-PAO Vol 20, No 2, May 77 pp 135-140]

4. Utilization of rice strains resistant to rice blast.
5. Rational application of insecticides.

AUTHOR: None

ORG: Cotton Research Institute of Ch'ang-te Prefecture, Hunan Province

TITLE: "Studies on the Occurrence and Control of Cotton Bollworms in the Lake Region of Hunan Province"

SOURCE: Peking K'UN-CH'UNG HSUEH-PAO [ACTA ENTOMOLOGICA SINICA] in Chinese Vol 20, No 2, May 77 pp 141-146

TEXT OF ENGLISH ABSTRACT: This paper deals with the phenology and control of the cotton bollworm, *Heliothis armigera*, in the lake region of Hunan Province. The pest breeds four complete generations each year, with a partially incomplete fifth one. Diapausing pupae appear in the third generation in a few cases; and the majority of the pupae of the fourth generation go into diapause in the hibernating quarters under the ground. The rate of development is influenced by the local microclimatic factors. The adults usually mate after midnight and the unfertilized, unhatchable eggs laid may amount to about 30% of the total. It was noted that corns were more heavily infested than cottons and the late maturing varieties of the crops more heavily infested than the early maturing ones. For chemical control a mixture of Oxydisulfoton and DDVP was found to be effective.

AUTHOR: None

ORG: Section of Sericultural Service, Academy of Agricultural and Forestal Sciences of China; Laboratory of Physiology and Pathology, Kiangsu Institute of Sericulture; Laboratory of Insecticide and Toxicology, Peking Institute of Zoology, Chinese Academy of Science; First Research Laboratory, Shanghai Institute of Organic Chemistry, Chinese Academy of Science

TITLE: "Application of Phytogenous Ecdysones to Regulate the Growth and Silk Production in *Bombyx Mori* L."

SOURCE: Peking K'UN-CH'UNG HSUEH-PAO [ACTA ENTOMOLOGICA SINICA] in Chinese Vol 20, No 2, May 77 pp 147-154

TEXT OF ENGLISH ABSTRACT:

The present paper, from the viewpoint of sericultural production, deals with the practical aspects of using phytogenous ecdysone (MH, a mixture of β -ecdysone and ajugasterone A in proportion of 3:2) extracted from *Ajuga ciliata* Bunge for regulating the growth and silk production in the silkworm *Bombyx mori* L. The results may be summarized as follows.

1. Oral administration of MH at a dosage of 3 μ g/larva during the last larval instar (48—72 hours, 72—96 hours after the penultimate larval moult) shortened the feeding period two days (the last instar took 6 days in the controls), and smaller

cocoons were formed. This finding could be of practical value during mulberry leave shortage at later stages of the last larval instar.

2. Administrations twice of MH *per os* at a dosage of 4 μ g/larva 10 hours before larval maturity were found capable of shortening the feeding period of last instar larva 14 hours and shortening the moulting time from 39 hours to 14 hours. When MH were applied *per os* after 5—10% of the larvae had reached maturity at a dosage of 2.2 μ g/larva, all the larvae would moult within 12 hours after the administration. Consequently the period of moulting was greatly shortened and much human labour was saved.

3. Administration of MH just before larval maturity brought forth a significant decrease in the number of non-spinning silkworms. This finding is not only of interest in the practical use of juvenile hormone analogues to increase silk production, but

also of importance in preventing the occurrence of too many non-spinning individuals in silkworm rearing.

4. Administration of MH at a suitable dosage during the early stage of last larval instar (24 hours after the fourth moult) could increase silk production. The larvae would produce 4—17% more silk than the controls under different experimental conditions.

5. The productivity of silk can be enhanced through oral administration of MH to the fifth instar larvae at various times. MH treatment induced significant increases in daily produced cocoon-layer weights varying from 5% to 30%.

AUTHOR: CHEN Chu-an [7115 4376 1344]

ORG: Ch'ing-t'ien Institute of Oil Tea Research, Chekiang Province

TITLE: "Preliminary Studies on the Fungus Disease of the Scale *Metacaronema japonica* Mask"

SOURCE: Peking K'UN-CH'UNG HSUEH-PAO [ACTA ENTOMOLOGICA SINICA] in Chinese
Vol 20, No 2, May 77 pp 155-162

TEXT OF ENGLISH ABSTRACT:

The fungus *Hirsutella* sp. shows a great pathogenicity to the scale *Metacaronema japonica* Mask. infesting oil tea trees in China. Although the infection can occur in the male and female individuals of different developmental stages the epizootics of the fungus usually manifest in the matured female scales.

This fungus can grow and multiply very well on some common cultural media and possesses a broad range of thermal adaptation. It can be induced to infect the scales at relative humidities above 80% and monthly thermal averages varying from 11° to 27°C.

This fungus is dispersed through the carriage of insects, especially ants, and flowing currents of rains. Once the disease centers are established the fungus spores will spread continuously towards the surroundings to form secondary centers. This fungus is considered to be valuable for the use of controlling the scales.

AUTHOR: HU Sheng-chiu [0729 5116 0036]
LI Hsing-hua [2621 5281 0553]

ORG: Hu of Department of Sericulture, Chin-chou College of Agriculture and
Li of Institute of Sericultural Science, Tan-tung City

TITLE: "Preliminary Studies on a Tachinid Parasite of Tent Caterpillars"

SOURCE: Peking K'UN-CH'UNG HSUEH-PAO [ACTA ENTOMOLOGICA SINICA] in Chinese
Vol 20, No 2, May 77 pp 163-169

TEXT OF ENGLISH ABSTRACT:

The tachinid endoparasite *Baumhaueria goniaeformis* Meigen is one of the most important natural enemies of the tent caterpillar, *Malacosoma neustria testaceus* Mots., which infests the oak trees in oak silkworm rearing areas. An investigation in two counties of Liaoning Province revealed the percentages of parasitized tent caterpillars to be 93.6% and 86.3% respectively. Morphological descriptions of different developmental stages of this tachinid species are made. It was observed that it had a single generation a year in Liaoning Province and the pupae over-wintered under the ground. Adult emergence took place from middle April to early May and oviposition from middle May to early June. The larvae lived within the hosts about one month and then left the latter from middle to late June. The adult flies preferred the secretions from the buds and young leaves of *Quercus mongolica* Fisch. and would oviposit

[continuation of K'UN-CH'UNG HSUEH-PAO Vol 20, No 2, May 77 pp 163-169]

on the young leaves. The life span of the female fly was about 20 days and the total number of eggs laid was about 2,600 in average. It could be artificially induced to parasitize the oak silkworms, *Antheraea pernyi*, but could not complete larval development because of the encapsulation by host tissues which unexceptionally killed the larvae. Therefore it is not a menace to oak silkworm rearing.

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ORG: Ch'ang, Chang, and Shu of Shensi Institute of Pomology; Huang of North China Agricultural University

TITLE: "Studies on the Biology of the Apple Fruit Moth----Influences of the Fruits on the Establishment, Growth and Diapause of the Larvae"

SOURCE: Peking K'UN-CH'UNG HSUEH-PAO [ACTA ENTOMOLOGICA SINICA] in Chinese Vol 20, No 2, May 77 pp 170-176

TEXT OF ENGLISH ABSTRACT: The present paper deals with influences of fruits on the establishment, growth and diapause of the larvae of apple fruit moth *Carposina niponensis* Wals. which is one of the worst pests of pome and stone fruits in China. In Liaoning Province this insect has two generations a year with a partial occurrence of diapausing larvae of the first generation. The eggs were usually deposited near the calyces of the pome fruits and the successful cases of the boring action were influenced by the growth stages and specific and varietal differences of the fruits. Pears were more resistant in the early growth stages and became more susceptible as they grew. The larvae of the second generation could bore into the fruits better and their survival rates were higher than those of the first generation. The rates of

[continuation of K'UN-CH'UNG HSUEH-PAO Vol 20, No 2, May 77 pp 170-176]

larval growth were influenced by temperature as well as the specific and varietal differences of the fruit. In the "Kuo-kuang" variety of apple their survival rates were the lowest and the occurrence of diapausing larvae the earliest. These findings can be of great value in designing chemical control against this pest in different fruit orchards.

AUTHOR: HSIEH Hsiang-lin [6200 4382 2651]

ORG: Plant Protection and Quarantine Station, Ch'ien-nan Chou, Kweichow Province

TITLE: "Preliminary Study on the Bionomics and Control of the Sorghum Fly"

SOURCE: Peking K'UN-CH'UNG HSUEH-PAO [ACTA ENTOMOLOGICA SINICA] in Chinese Vol 20, No 2, May 77 pp 177-182

TEXT OF ENGLISH ABSTRACT: In recent years hybrid sorghum has been cultivated in an ever-growing area of southern Kweichow Province. The sorghum fly *Atherigona soccata* Rondani is one of the worst pest of sorghum in China. From 1973 to 1974 its bionomics and controlling measures were studied. In Tu-Yun district this insect had seven generations a year. The influences of various environmental factors on its development were observed. For controlling this pest cultural method by regulating the date of sorghum sowing and chemical method by application of Dimethoate were found to be effective.

AUTHOR: YEN Ching-sung [7346 0079 2646]
YEH Ts'ang-chiang [0673 3318 3068]

ORG: Tsinghai Institute of Biology, Sining

TITLE: "Notes on the Larvae of Some Chironomid Midge (Diptera: Tendipedidae) and Two New Species from Pai-yang-tien Lake in Hopeh Province"

SOURCE: Peking K'UN-CH'UNG HSUEH-PAO [ACTA ENTOMOLOGICA SINICA] in Chinese
Vol 20, No 2, May 77 pp 183-189

TEXT OF ENGLISH ABSTRACT: The specimens for the present study were collected in Pai-yang-tien Lake Region, Hopeh Province, during the period from December, 1963 to April, 1965. A total of 19 species belonging to 14 genera and 3 sub-families were obtained. Among them, two species are considered to be new to science, while *Procladius choreus* Meigen, *Eucricotopus trifasciatus* (Panzer), *Paratanytarsus dissimilis* Johannsen, *Micropsectra logana* Johannsen, *Rheotanytarsus exiguus* Johannsen, *Endochironomus nigricans* Johannsen, *Polypedilum leucopus* Meigen, *Polypedilum scalaenum* Scharnk, *Cryptochironomus digitatus* Meigen, *Cryptochironomus fuscimanus* Kieffer, *Cryptochironomus* (*Harnischia*) *viridula* (Linn.), *Glystotendipes lobiferus* Say, *Tendipes* (*Einfeldia*) *insolita* Walker and *Tendipes attenuatus* Walker are recorded for the first time from China. Only two species are described in detail and the main morphological characters of the other species have been noted in the key.

[continuation of K'UN-CH'UNG HSUEH-PAO Vol 20, No 2, May 77 pp 183-189]

CLINOTANYPUS MICROTRICHINUS sp. nov.

TYPE: adult male, type locality: An-hsin, Hopeh Province, collected by the authors, Sept. 5th, 1964, deposited in the Tsinghai Institute of Biology, Sining.

Paratype; 4 adult male, collected from An-hsin, Sept., 1964.

Specimens of larvae: 205 specimens collected from Ya-ch'uan-tien, Feb., May, Aug., Oct., and Nov., 1964.

This new species is closely allied to *C. nervosus* Meigen and *C. sugiyamia* Tokunaga, but differs from *C. nervosus* in having (1) microtrichia on wing membrane, (2) a middle dark brown marking on posterior cross vein, (3) the proportional length of 14th with 2nd to 13th antennal segments less than that of *C. nervosus*, (4) shorter body length and greater value of AR in full grown larvae, (5) smaller proportion of antennal length with head length in larvae. It also differs from *C. sugiyamia* in having 15 antennal segments; least value of AR in male adult; and presence of anal point. These differences are listed in table 2 in detail.

CHAETOCLADIUS SEXPAPILOSUS sp. nov.

Type; adult male, it was reared from larva by the authors on Oct. 20th, 1964, An-hsin, Hopeh Province.

[continuation of K'UN-CH'UNG HSUEH-PAO Vol 20, No 2, May 77 pp 183-189]

Allotype: adult female, two were reared from larvae and three were collected from Ya-ch'uan-tien, Oct., 1964.

Paratype: adults male, three were reared from larvae and twelve were collected from Ya-ch'uan-tien, Oct., 1964.

A total of 107 larvae and 9 pupae were reared from eggs, and other larvae were collected from Pai-yang-tien Lake Region.

The type, allotype, paratype and specimens of larvae and pupae are deposited in the Tsinghai Institute of Biology, Sining.

This new species is allied to *Spaniotoma* (*Orthocladus*) *akamusi* Tokunaga, but differs from the latter in having anal point present and hypopygium with three pairs of appendages in the adult male.

9129

CSO: 4009

AUTHOR: None

ORG: Kiangsu Institute of Insecticides

TITLE: "On the Preparation of A New Insecticide Permethrin"

SOURCE: Peking K'UN-CH'UNG HSUEH-PAO [Acta Entomologica Sinica]
Vol 20, No 2, May 77 p 236

ABSTRACT: Insecticidal properties and chemical structure of this insecticide, 3-phenoxybenzyl-2,2-dimethyl-3-(2,2-dichlorovinyl)-1-cyclopropane-carboxylate, are similar to those of permethrin, but it has a longer residual effectiveness. First prepared in Britain, it was synthesized by the above Institute in 1975. A series of test applications against major pests of paddy rice, cotton, vegetables, sweet potatoes, and tea have shown the insecticide to possess high effectiveness and low toxicity, and it is also effective against mosquitoes, flies, and cockroaches. Applications and concentrations for various crop pests are briefly mentioned.

AUTHOR: WANG Hsiang-ch'ing [3769 4382 1987]

ORG: Crop Pest Prognostication Station, Jung County, Kwangsi

TITLE: "Preliminary Observation on the Infestation of Rice by Parasa Sp."

SOURCE: Peking K'UN-CH'UNG HSUEH-PAO [Acta Entomologica Sinica] Vol 20,
No 2, May 77 pp 237-238

ABSTRACT: This type of armyworm is a major rice pest in Shih-t'ou, Sung-shan, and Ling-shan communes in the mountainous regions of Jung County and in Lo-hsiu and Sha-p'o communes of Kuei-p'ing County. There are two infestations each year: of early rice from the last 10 days of May to the first and second 10-day periods of June, and of late rice from the first 10 days of September through the middle 10 days of October; the earlier infestation is more serious. The leaves of the rice plants are entirely eaten away, and photosynthesis is severely affected. Extent of infestation is normally 5-10 percent of planted area, reached 20-30 percent in severe years. Preliminary observations and morphological and ecological descriptions of the insect are presented.

11310

CSO: 4009

GENETICS AND BREEDING

AUTHOR: None

ORG: Wheat Research Group, Yunnan K'un-ming Institute of Agricultural Science

TITLE: "Town's Breeding of Spring Wheat in Summer"

SOURCE: Peking I-CH'UAN YU YU-CHUNG [Genetics and Breeding] in Chinese
No 4, Jul 77 pp 4-6

ABSTRACT: This article reports the successful breeding of new spring wheat varieties in K'un-ming during summer, where the exceptionally small seasonal temperature differences of the district makes much shorter breeding time and faster breeding process possible. By careful control of such techniques as plot selection, timing of seeding, fine field practices, and selection of good varieties, many good varieties have been introduced and propagated since 1971, and many new superior strains developed from 823 hybrid combinations. Since 1971, about 50 research, teaching and production units from 17 provinces (regions) and municipalities of China have also come to K'un-ming to study the prospects of propagating spring wheat seedlings in K'un-ming in summer for eventual cultivation in the spring fields of northern and north-eastern China, and in the winter fields of southern China.

AUTHOR: None

ORG: Tissue Culture Laboratory, Institute of Genetics, Chinese Academy of Sciences

TITLE: "Virus-free Plantlet Obtained from Culture of Potato Apical Stem"

SOURCE: Peking I-CH'UAN YU YU-CHUNG [Genetics and Breeding] in Chinese
No 4, Jul 77 pp 14-15

ABSTRACT: This article reports the successful culture of virus-free potato plantlets from the apical stems of 12 infected, degenerated potato varieties since 1974. The technique includes inoculation of disinfected terminal sprouts at definite growth points irradiated with sunshine and a 700-1,000 lux fluorescent lamp for 9-10 hours a day, at 18-26 degrees C, and in a MS culture medium that contains also 0.3 mg. per liter of naphthyl acetic acid and 0.8-1.2 mg. per liter of erythromycin. The yield of virus-free potato plantlets is 71.05 percent of virus x-free plantlets, 65.5 percent of virus y-free plantlets, and 51.72 percent of virus x and y-free plantlets. The technique of how to transplant the so-cultured virus-free plantlets is also introduced.

AUTHOR: None

ORG: Kirin Che-li-mu League Institute of Agricultural Sciences

TITLE: "Comparative Study on Potato Apical Stem's Culture Medium"

SOURCE: Peking I-CH'UAN YU YU-CHUNG [Genetics and Breeding] in Chinese No 4, Jul 77 p 15

ABSTRACT: Based on the condition that virus cannot contaminate the meristems of potato apical stems, a comparative study was made on the culture of potato apical stems of three potato varieties in different culture mediums. The results show that: (1) a MS culture medium that contains also 1.5 mg/l of erythromycin and 3 percent sugar gives the highest sprout induction rate, or an average of 39.5 percent; and (2) a culture medium that contains MS culture plus 3 percent naphthanylacetic acid or indolylacetic acid plus 3 percent sugar gives the highest root growth rate.

AUTHOR: None

ORG: Genetic Seed Selection Teaching and Research Group, Chekiang Agricultural University

TITLE: "Applications of the Utilization of Heterosis in Cotton Glandless Body Strains"

SOURCE: Peking I-CH'UAN YU YU-CHUNG [Genetics and Breeding] in Chinese No 4, Jul 77 pp 17-18

ABSTRACT: Following a confirmation that glandless bodies in the juvenile stems, cotyledor stems and cotton boll shells of Ning-mien No 12 cotton varieties are all controlled by a pair of recessive genes, determinations on the mating power of the glandless bodies of Ning-mien No 12 cotton varieties 62-1 and 62-5 with P'ai-ma-szu-t'e 111A prove that the resultant hybrids are higher in cotton yield (29 percent), more and heavier in cotton bolls, and longer in cotton fibers, if compared with those of Tai No 15 and Hsieh-tso No 2 cotton varieties. In view of this heterosic superiority, it is suggested that such glandless bodies be selected as the parents in the breeding of new hybrids by means of pollination without male steriles, to further assess its utilization value in production.

AUTHOR: None

ORG: Hopeh Ning-shou County Pei-ho-ying Production Brigade and Hopeh Shih-chia-chuang District Institute of Agricultural Sciences

TITLE: "Preliminary Report of Shu-k'uei Cotton Distant Relative Hybrid Breeding"

SOURCE: Peking I-CH'UAN YU YU-CHUNG [Genetics and Breeding] in Chinese No 4, Jul 77 pp 18-19

ABSTRACT: This article reports successful asexual hybridization of Shih-tuan No 5 cotton varieties and Shu-k'uei cotton varieties to obtain new strains of cotton that possess all the superior qualities of strong adaptability, good bolling properties, compact plant composure, long fiber and high yield. After the selection of the two cotton varieties for hybridization in 1969, and from seven seeds obtained from 80 flowers, five basically stable cotton strains that possess the desired quality were obtained after 7 consecutive years of breeding (1971-1976). The significance of isolated mutations, utilization values and selective stability of the hybrid offsprings are discussed and illustrated.

AUTHOR: None

ORG: 301 Research Group, Institute of Genetics, Chinese Academy of Sciences

TITLE: "Effect of Low Temperature Pretreatment on Wheat Anther Culture"

SOURCE: Peking I-CH'UAN YU YU-CHUNG [Genetics and Breeding] in Chinese No 4, Jul 77 pp 24-25

ABSTRACT: This article reports a series of experiments on the effect of low temperature pretreatment on wheat anther culture. The results confirm that low temperature pretreatment can raise the induction frequency of anther callous from 11.7 percent (control) to 20.6 percent, the total induction frequency of differentiated green sprouts from 6.24 percent (control) to 13.04 percent, and the natural grain-forming frequency from 13.9 percent (control) to 34.1 percent. The optimal temperature for the pretreatment was found to be 1-4 degrees C, and the optimal pretreatment time was found to be 96 hours.

AUTHOR: None

ORG: Kwangsi Institute of Animal Husbandry

TITLE: "A Study on Pig Sperm Refrigeration Technique"

SOURCE: Peking I-CH'UAN YU YU-CHUNG [Genetics and Breeding] in Chinese
No 4, Jul 77 pp 26-28

ABSTRACT: This article reports a study on the technique of pig sperm refrigeration. The results conclude that: (1) addition of egg yolk and glycerine to the refrigeration diluent improves the vitality and revivification of the refrigerated sperm; (2) glycerine exerts a protective action on refrigerated sperm; (3) the optimal sperm preservation temperature is 10-20 degrees C for full sperm, and 5-10 degrees C for concentrated sperm, while the optimal equilibrational temperature is 8 degrees C, and the optimal equilibrational time is 2-4 hours; (4) the optimal dropping granule-forming temperature is -10 - -20 degrees C; (5) the optimal rate of refrigeration is -10 degrees C per minute; (6) floating box method gives the best refrigeration effect; and (7) the best defreezing agent is that containing a definite amount of glucose, and the optimal defreezing temperature is 50-55 degrees C. Although the technique has been successfully applied in many nearby farms, the results with respect to the rate of pregnancy and farrow are still inferior to those of liquid sperms at normal temperature.

11,206

CSO: 4009

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ORG: None

TITLE: "Bacterial Leaching of Low-Grade Uranium Ores"

SOURCE: Peking WEI-SHENG-WU HSUEH-PAO [ACTA MICROBIOLOGICA SINICA] in Chinese,
No 1, Mar 77 pp 11-20

TEXT OF ENGLISH ABSTRACT:

An iron-oxidizing bacterial strain, O-D has been isolated from acid mine drainage and identified as *Thiobacillus ferrooxidans*. Through bacterial oxidation, Uranium in certain low-grade ores containing pyrite (essential mineral ingredients as Uranite, Autunite, Uraninite) was readily leached out. When ore containing 0.017% U was treated with bacteria- $\text{Fe}_2(\text{SO}_4)_3$ solution at pH 1.5 in columns or heaps for 40 days, more than

[continuation of WEI-SHENG-WU HSUEH-PAO, No 1, Mar 77, pp 11-20]

50% or 60% of uranium was leached out from ore with grain size of 30 mm or 10 mm respectively. This leaching efficiency was equal to that obtained by leaching with H_2SO_4 for the same duration, but the bacteriological method saved more than 90% of H_2SO_4 .

The bacterial growth and the oxidation of ferrous ions were inhibited by the U and Mo at certain concentration during leaching process. However, desirable strains which can tolerate 1000 mg/l of uranium and 200 mg/l of molybdenum in the leaching solution have been selected by adaptation method.

Received 12 July 1976

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ORG: Institute of Microbiology, Chinese Academy of Science, Peking

TITLE: "Mutagenic effect of N-Methyl-Nitro-Nitrosoguanidine (MNNG) for *Bacillus Pumilus* AS 1.271"

SOURCE: Peking WEI-SHENG-WU HSUEH-PAO [ACTA MICROBIOLOGICA SINICA]
in Chinese, No 1, Mar 77 pp 21-28

TEXT OF ENGLISH ABSTRACT:

1. At pH 6 MNNG is stable but it decomposes rather rapidly under alkaline conditions. It is very sensitive to light irradiation, under which decomposition occurs.

2. The relationship between survival rate and mutation rate in *B. pumilus* strain AS 1.271 with various dosages of MNNG treatments, and the optimal conditions for the maximal mutation rate around 20% were established: The age

[continuation of WEI-SHENG-WU HSUEH-PAO, No 1, Mar 77, pp 21-28]

of culture being immediately prior to logarithmic growth, in 0.05 M TM buffer pH 6, with 1000 mg/ml MNNG at 30°C by 45 min.

3. Out of 1775 mutant strains 947 were tested for their nutritional deficiency. It was found that when treated with MNNG, the mutation spectrum of strain AS 1.271 is rather broad, auxotrophs deficient in either nucleotide bases, amino acids, or vitamins, and auxotrophs with double deficiencies. Adenine deficiency was most prevalent among base deficiencies, while histidine, glutamic acid, methionine, and arginine deficiencies were most prevalent among amino acid deficiencies.

Received 21 June 1976

AUTHOR: None

ORG: Experimental Cooperation Group of Seed-Potato Production*

TITLE: "Studies on the Technique of Seed-Potato Production II. Comparison of the Efficiencies of Several Serological Techniques for the Detection of Potato Virus X"

SOURCE: Peking WEI-SHENG-WU HSUEH-PAO [ACTA MICROBIOLOGICA SINICA] in Chinese, No 1, Mar 77 pp 29-33

TEXT OF ENGLISH ABSTRACT;

The sensitivities of radial immuno-diffusion (RID), bentonite flocculation test (BFT), microprecipitin test (MPT) and tuber precipitin test (TPT), for the detection of potato virus X (PVX) were compared with pure virus preparations. The minimum concentration of PVX detected by means of RID and BFT was 1 µg/ml (0.01 µg and 0.1 µg for each test respectively). MPT and TPT were sensitive to 100 µg/ml of PVX (0.1 µg and 25 µg for each test respectively).

[continuation of WEI-SHENG-WU HSUEH-PAO, No 1, Mar 77 pp 29-33]

The relative efficiencies of RID, BFT and microagglutination test (MAT) with potato foliage extract were 93%, 71% and 82% respectively. With young sprout the relative efficiencies of BFT and MAT were 96% and 80% respectively.

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Laboratory of Plant Physiology, Peking Institute of Botany, Academia Sinica.

Research Group of Plant Virus, Institute of Microbiology, Academia Sinica.

AUTHOR: None

ORG: Ch'eng-tu Veterinary Pharmaceutical Plant, Ch'eng-tu

TITLE: "An Attenuated Strain of *Pasteurella Suisepctica* E₀ 630"

SOURCE: Peking WEI-SHENG-WU HSUEH-PAO [ACTA MICROBIOLOGICA SINICA]
in Chinese, No 1, Mar 77 pp 34-40

TEXT OF ENGLISH ABSTRACT:

After continuous subculturing of C₄₋₁, a virulent strain of *Pasteurella suisepctica*, on Martin agar medium containing "Sea gull" detergent for 630 generations, this strain almost lost its pathogenicity to rabbit or swine.

Injection of such attenuated strain, E₀630, at a dosage of 50×10^8 and $300-780 \times 10^8$ living cells was not lethal to rabbit and swine, respectively. E₀630 has a desirable immunogenicity. Either swine injected with $2-3 \times 10^8$ living cells or rabbit injected with 0.75-1.0

$\times 10^8$ can resist the challenge of a virulent strain. The attenuated strain proved relatively stable as no restoration of virulence in rabbit or swine was observed after successive passage on Martin agar medium with out "Sea gull" detergent for 50 generations, on fresh blood agar medium for 23 generations or on susceptible swine for 5 generations. This attenuated strain can be used for the preparation of the lyophilized vaccine against swine hemorrhagic septicaemia.

Received 8 August 1976

AUTHOR: None

ORG: Szechwan Institute of Biology, Ch'eng-tu; Shanghai Twelfth Medicinal Factory, Shanghai

TITLE: "Studies on Microbial Dehydrogenation of Betamethasone Intermediate 17 α -hydroxy-16 β -methyl-pregn-4, 9(11)-diene-3, 20-dione"

SOURCE: Peking WEI-SHENG-WU HSUEH-PAO [ACTA MICROBIOLOGICA SINICA]
in Chinese, No 1, Mar 77 pp 41-46

TEXT OF ENGLISH ABSTRACT:

Three Strains A₆₉₋₁, A₆₉₋₂, C₁₋₁ were selected from 47 strains that are capable of conversion methyltestosterone. Each screened strain possesses strong Δ^1 -dehydrogenating activity to the betamethasone intermediate 17 α -hydroxy-16 β -methyl-pregn-4, 9(11)-diene-3, 20-dione.

Primary studies on transformation conditions of A₆₉₋₁ were carried out, Et

was found that medium, aeration, metal ion, concentration of ethanol and feeding of penicillin are closely effectual to microbial dehydrogenation. Further experiments proved a quantity of aeration in the key transformation process, which in a fermentor of 3001, the yield about 70%.

Received 6 October 1976

AUTHOR: None

ORG: Microbiology Laboratory, Northwest Institute of Soil and Water Conservation Biology and Pedology, Wu-kung

TITLE: "Mucor Used for Producing Nucleotide Derivatives I. Enzymatic Synthesis of ATP by Mucor"

SOURCE: Peking WEI-SHENG-WU HSUEH-PAO [ACTA MICROBIOLOGICA SINICA] in Chinese, No 1, Mar 77 pp 47-51

TEXT OF ENGLISH ABSTRACT:

From 76 strains of fungi (Aspergillus, 8; Rhizopus, 13; Mucor, 38; and other fungi 17;) 8 strains of Mucor were selected, which can convert AMP to ATP with a conversion rate of over 90% and 5 strains of them with a conversion rate of over 95%. The enzymatic converting product of AMP was identified as ATP by UV absorption spectra, paperelectrophoretograms and acid labile phosphate assay.

(continuation of WEI-SHENG-WU HSUEH-PAO, No 1, Mar 77 pp 47-51)

Formation of ATP occurred at the glycolytic level as evidenced by its being highly inhibited by iodoacetic acid and fluoride, not inhibited by α, α' -dipyridyl, malonic acid, 2,4-dinitrophenol and sodium triphosphate; and by releasing ethanol and CO₂ simultaneously.

Received 9 August 1976

AUTHOR: None

ORG: Japanese B Encephalitis Virus Research Group, Ch'eng-tu Institute of Serum and Vaccine, Ch'eng-tu

TITLE: "Application of Rotating Cultivation of Hamster Kidney Cells for the Production of Japanese B Encephalitis Virus Vaccine"

SOURCE: Peking WEI-SHENG-WU HSUEH-PAO [ACTA MICROBIOLOGICA SINICA] in Chinese, No 1, Mar 77 pp 52-56

TEXT OF ENGLISH ABSTRACT:

1. After trypsinization of the kidney tissue of 14—20 days old hamsters, the cell suspension was inoculated onto the wall of a 15 l. bottle. To each bottle, kidney tissue from 30 hamsters and 2 l. growth medium containing 5% calf serum were added. The bottles were incubated in a spinner with different speeds, at 37—38°C. The best results were obtained at 4—5 revolutions per hour: most of the cells adhered uniformly on to the glass wall, multiplying in all directions and

(Continuation of WEI-SHENG-WU HSUEH-PAO, No 1, Mar 77 pp 52-56)

forming a dense, homogeneous monolayer.

2. Growth medium was removed. After washing with Hank's solution, the monolayer was inoculated with "P," mouse brain strain of Japanese encephalitis virus. 15—16 l maintenance medium containing 0.1% human serum albumin and Hank's solution containing cysteine 3% mg were added. The final virus concentration was 10^{-4} . Stationary cultivation was carried out at 37—38°C for 36—48 hours. Virus was harvested at a time when 25—50 cell spheroid shrinkage, noticeable cytopathogenic effect and more cells detachment were occurred.

3. Formaldehyde in a final concentration 1:2000 was added to the harvested fluid. Inactivation proceeded at 36°C for 3 days. The 50% immuniz-

(continuation of WEI-SHENG-WU HSUEH-PAO, No 1, Mar 77 pp 52-56)

ing dose (ID₅₀) was determined by intraperitoneal challenge after immunizing the mice with 13 lots of vaccine. The ID₅₀ of 84.6% vaccines prepared was 10⁻³ ml.

4. Five lots of vaccine had been kept at 8°C for 18 months without lowering the ID₅₀.

Received 10 June 1976

AUTHOR: None

ORG: Microbial Cell Biology Research Group, The Institute of Microbiology, Chinese Academy of Science, Peking

TITLE: "Comparative Studies on the Effects of Lysozyme Towards the Various Occurrence States of the Cell Wall of Bacteria"

SOURCE: Peking WEI-SHENG-WU HSUEH-PAO [ACTA MICROBIOLOGICA SINICA] in Chinese, No 1, Mar 77 pp 57-61

TEXT OF ENGLISH ABSTRACT:

The effects of lysozyme towards the living or dead cells and isolated wall of *Micrococcus lysodeikticus* and *Bacillus subtilis* were studied. Purity of the isolated cell wall were investigated. The nonhomogeneity of the cell wall structure was confirmed with the "finger prints" showed by the diffraction patterns. The

limitation and availability of polarizing microscopic method for detecting the birefringence of the cell wall were discussed. The scanning electron-micrographs gave the clue to the low sensitivity of the TCA treated cell powder to lysozyme action.

Received 8 May 1976

9129

CSO: 4009

AUTHOR: None

ORG: Bacterial Fertilizer Group, Institute of Soils, Fertilizers, and Plant Protection, Shanghai Municipal Academy of Agricultural Sciences

TITLE: "The Relationship Between Actinomyces microflavus 5406 and Several Soil Microorganisms"

SOURCE: Peking WEI-SHENG-WU HSUEH-PAO [Acta Microbiologica Sinica] in Chinese No 1, Mar 77 pp 62-63

ABSTRACT: Antagonistic experiments and mixed composting experiments with several varieties of fertilizer bacteria were conducted to investigate the effects of A. microflavus 5406 on the activity of beneficial soil microbes and relationships among various microbes in compound bacterial fertilizers produced by mixing 5406 with nitrogen, phosphorus, potassium, and other bacterial fertilizers. Antagonistic experiments indicated that 5406 strongly inhibits Aspergillus niger, Trichoderma sp., and Bacillus subtilis, weakly inhibits Azotobacter chroococcum, and has no inhibiting effect on potassium bacteria 308, organic phosphorus bacteria, or Rhizobium astragali 6601. When 5406 was mixed with Azotobacter

[continuation of WEI-SHENG-WU HSUEH-PAO No 1, Mar 77 pp 62-63]

vinelandii and potassium bacteria, bacterial counts were higher in mixed composts than in individual composts, indicating the existence of a symbiotic relationship.

AUTHOR: None

ORG: Third Phytochemistry Group, Tientsin Institute of Chinese Medicine

TITLE: "Preliminary Investigation of Microbes and Digestive Enzymes of Shen-ch'u [a traditional medicinal yeast]"

SOURCE: Peking WEI-SHENG-WU HSUEH-PAO [Acta Microbiologica Sinica] in Chinese No 1, Mar 77 pp 64-65

ABSTRACT: Shen-ch'u is a traditional Chinese medicinal substance effective in digestion, 'mobilizing vital force', and in strengthening the spleen and nourishing the stomach. The paper describes the analysis of types of microbes in samples of shen-ch'u from Tientsin, Peking, and Nanking, and chien-ch'u (a similar substance) from Chang-chou, determination of proteinase and amylase activity, effects of roasting on numbers of bacteria, saccharomycetes, and molds in samples, and effects of traditional supplements (small red beans, almonds, etc.) on proteinase and amylase activity. Results are presented in tabular form.

AUTHOR: None

ORG: Bronchitis Prevention Group, First Accessory Hospital, Human Medical College; Microbiology Teaching and Research Group, Hunan Medical College

TITLE: "Effects of Three Kinds of Air-Disinfecting Incense Coils on Bacteria and Clinical Applications"

SOURCE: Peking WEI-SHENG-WU HSUEH-PAO [Acta Microbiologica Sinica] in Chinese No 1, Mar 77 pp 66-69

ABSTRACT: Compositions of three types of incense are given and experimental procedures described. Eight types of bacteria were selected for testing the bactericidal effectiveness of the incense in upper respiratory infections and against pus-forming bacteria. Efficacy is more apparent against Streptococcus hemolyticus A, Diplococcus pneumoniae, Haemophilus influenzae, Bacillus pyocyaneus and Bacillus proteus; E. coli, Staphylococcus aureus, and Streptococcus hemolyticus B are more strongly resistant to the incense smoke. As for clinical applications, incense 1 and 2 are effective in preventing respiratory infections; incense 3 is effective in preventing burn infections.

AUTHOR: WANG Yung-chi [3769 3938 2813]

ORG: Peking Institute of Biological Preparations

TITLE: "Problems in the Pathogenesis and Immunoprophylaxis of Viral Hepatitis"

SOURCE: Peking WEI-SHENG-WU HSUEH-PAO [Acta Microbiologica Sinica] in Chinese No 1, Mar 77 pp 70-78

ABSTRACT: A comprehensive survey and critique of foreign contributions in hepatitis research over the last 10 years is presented. The two types of hepatitis and their antigens are introduced, and problems in etiology, pathogenesis, and immunoprophylaxis are discussed. The key to understanding and treating the disease is isolating and successfully culturing in vitro the viral hepatitis pathogen.

Paper received 10 July 1976.

AUTHOR: None

ORG: None

TITLE: "Editorial Meeting of Fungous Flora of China, Lichen Flora of China, and Moss Flora of China Held in Peking"

SOURCE: Peking WEI-SHENG-WU HSUEH-PAO [Acta Microbiologica Sinica] in Chinese No 1, Mar 77 insert following p 78

ABSTRACT: Report on editorial conference held in Peking from 20-27 January 1977 under the joint auspices of the Institute of Microbiology and the Peking Institute of Botany, both of the Chinese Academy of Sciences. The more than 100 delegates from scientific research units, institutions of higher learning, hospitals, and museums of natural history in 21 provinces, municipalities, and autonomous regions were received by Comrade Fang I [2455 3015], Vice-President of the Chinese Academy of Sciences. Delegates exchanged editorial and academic experiences and determined publishing plans for the years 1977-1980.

11310

CSO: 4009

ACTA PHYTOTAXONOMICA SINICA

AUTHORS: CHU Hao-jen [2612 3185 3544]
LIU Chih-li [0491 1807 4409]

ORG: Both of Faculty of Phycology, Department of Biology, Nanking University

TITLE: "An Important Approach for Serving Production in Algology"

SOURCE: Peking CHIH-WU FEN-LEI HSUEH-PAO [ACTA PHYTOTAXONOMICA SINICA] in Chinese Vol 15 No 1, May 77 pp 4-7

ABSTRACT: Starting in 1974, ancient algae training classes were held by the authors' department with more than 100 participants from petroleum geology units, institutes and research organizations. Studying algology is important in geological surveying and petroleum exploitation. Beginning in the Neogene period, species of Clavatoraceous plants became gradually fewer. Since China's continental-facies land formations of the Mesozoic and Cenozoic eras were extensively distributed, many oil fields were discovered in these basins of continental facies. Alteration in Clavatoraceous plants is quite clear; therefore, the Clavatoraceous fossil is useful in the partition and comparison of oil-bearing strata. Much data indicates that ancient algae is vital in the formation and enrichment of some mineral deposits. Natural gas in southwest China, some coal mines in northern Shensi and abundant petroleum

[continuation of CHIH-WU FEN-LEI HSUEH-PAO No 1, May 77 pp 4-7]

reserves (in algal reef oil-pool structures of the Sinian, Permian and Triassic periods) of many regions relate closely to the existence and activity of ancient algae. Thus, algae fossils have become an important indicator in surveying mineral resources.

AUTHOR: KUNG Hsieh /0364 0588/

ORG: None

TITLE: "Principal Herbs in China's Pasturelands"

SOURCE: Peking CHIH-WU FEN-LEI HSUEH-PAO /ACTA PHYTOTAXONOMICA SINICA/
Vol 15 No 1, May 77 pp 8-28

TEXT OF ENGLISH ABSTRACT: The natural grasslands of China are complex. There are meadow, steppe, desert-steppe grasslands, etc. There are 2520 species of wild herbage belonging to 512 genera, 88 families in the natural grasslands. According to the productive need for grazing, the characteristics of grassland type and the bioecological peculiarities of the herbage, it is necessary to choose the excellent species of herbage for improvement of the natural grassland and for use in cultivation, but not to limit to any particular genus or family. Basing on this principle the author recommended 46 species of herbage and simply described their bioecological characteristics, nutrition value and use for introduction of every species. Included are one map, seven tables and 24 figures.

AUTHOR: HSU Hsiang-hao /6079 4382 3185/

ORG: Kwangtung College of Agriculture and Forestry

TITLE: "Review of the Sterculiaceous Plants in China"

SOURCE: Peking CHIH-WU FEN-LEI HSUEH-PAO /ACTA PHYTOTAXONOMICA SINICA/
Vol 15 No 1, May 77 pp 72-84

ABSTRACT: In China, there are 19 genera, 84 species and 3 varieties of Sterculiaceous plants, generally located south of the Tropic of Cancer in the provinces of south and southwest China. Of these, 57 species are in Yunnan, 37 in Kwangsi and 36 in Kwangtung. Other provinces in which Sterculiaceous plants are distributed are Kweichow, Szechwan, Fukien and Taiwan. Usually, Sterculiaceous plants are not found north of the Yangtze River except for Sterculia platanifolia, which is found in North China. The 19 genera described in the article are Pterygota Schott & Endl., Sterculia Linn., Firmiana Marsigl., Heritiera Dryand., Craigia W. W. Smith & Evans, Kleinhovia Linn., Reevesia Lindl., Helicteres Linn., Eriolaena DC., Melochia Linn., Waltheria Linn., Theobroma Linn., Pentapetes Linn., Pterospermum Schreber, Paradombeya Stapf, Ambroma Linn. f., Melhania Forssk., Byttneria Loebl., and Commersonia Forst. Six figures in the article show six new species.

AUTHOR: K'O Ping /2688 0365/

ORG: None

TITLE: "Rhodobryum Giganteum (Schwaegr.) Par. -- A Species of Bryophyta for Treating Cardiovascular Diseases"

SOURCE: Peking CHIH-WU FEN-LEI HSUEH-PAO /ACTA PHYTOTAXONOMICA SINICA/
Vol 15 No 1, May 77 p 93

ABSTRACT: Rhodobryum giganteum (Schwaegr.) Par. is of Rhodobryum, Bryaceae, Bryophyta; this plant is usually seen in forests or on banks of streams in mountainous areas at elevations above 1,000 meters in the Yangtze River valley. In 1976, a laboratory of the Fourth Shanghai Pharmaceutical Plant determined that the principal plant content is volatile oil and amino acids. By animal pharmacological experiments using extractants, for each milligram of drug per milliliter of blood flow in coronary artery, the blood flow rate can be increased by more than 30 percent. In preliminary clinical tests, syrup or tablets prepared from the plant can lower blood pressure, relieve angina pectoris, and increase the blood flow rate in the coronary artery.

AUTHOR: LI Fu-hsing /2621 1788 5281/

ORG: Peking Municipal Feedstuffs Company

TITLE: "Symphytum Peregrinum Ledeb., A High-Yield Excellent Quality Feed Crop"

SOURCE: Peking CHIH-WU FEN-LEI HSUEH-PAO /ACTA PHYTOTAXONOMICA SINICA/
Vol 15 No 1, May 77 p 94

ABSTRACT: Symphytum peregrinum Ledeb. is classified under Symphytum, Boraginaceae and was originally from the Caucasus region of the USSR. After shifting into China, the grass has been planted in Peking, Liaoning, Kirin, Heilungkiang, Chekiang, Hunan, Kwangsi, Yunnan, Hainan Island and Inner Mongolia. The annual yield in Peking region is 20,000 to 25,000 chin per mou and the unit yield may exceed 30,000 chin in fields with sufficient water and fertility. The grass contains abundant protein and various vitamins and is as nutritious as lucerne on a crude protein basis. Therefore, it is a high-protein green feed for hogs and chickens.

ACTA ZOOLOGICA SINICA

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ORG: LIU, CH'EN of the Department of Parasitology, Chi-lin Medical College;
CHIN of the Anti-epidemic and Health Station of Chi-an County;
T'AN, YANG of the Anti-epidemic and Health Station of Tung-hua District

TITLE: "A Survey of the Etiological Agent of Paddy-Field Dermatitis in Chi-an Hsien, Chi-lin Province, With Preliminary Observations of the Life History of Trichobilharzia jianensis sp. nov. (Trematoda: Schistosomatidae)"*

SOURCE: Peking TUNG-WU HSUEH-PAO [ACTA ZOOLOGICA SINICA] in Chinese Vol 23, No 2, Jun 77 pp 161-174

EXCERPT FROM ENGLISH ABSTRACT: An etiological survey of the paddy-field dermatitis occurring in the Chi-an County, Chi-lin Province was carried out in 1974-1976. Cattle and domestic ducks were examined for schistosome infections. 69.9 percent of domestic ducks were determined to harbor Trichobilharzia jianensis sp. nov., while the cattle were negative. Cercariae of T. jianensis sp. nov. were found in the snail Galba perversa (Marens). They were capable of producing

[continuation of TUNG-WU HSUEH-PAO No 2, Jun 77 pp 161-174]

typical dermatitis, when the skin of four of the authors was exposed to them. It was concluded that the paddy-field dermatitis in the Chi-an County was caused by the cercariae of T. jianensis sp. nov. A preliminary observation of the life history is reported.

*We wish to express special thanks to professors CH'EN Hsin-t'ao [7115 1800 7118], T'ANG Chung-chang [0781 0112 3864] and KU Ch'ang-tung [7357 2490 2767] for reviewing and revising the present article.

AUTHOR: SUN Ju-yung [1327 0320 3144]
CHANG Yu-shu [1728 3768 2579]
FANG Hsi-ye [2455 0823 2814]

ORG: SUN, CHANG of the Department of Biology, Peking Normal University;
FANG of the Institute of Epidemiology, Chinese Academy of Medical Sciences

TITLE: "On the Role of Male Reproductive Intensity in the Ecological Studies of the Rodent Reproduction"

SOURCE: Peking TUNG-WU HSUEH-PAO [ACTA ZOOLOGICA SINICA] in Chinese Vol 23 No 2, Jun 77 pp 187-200

EXCERPT FROM ENGLISH ABSTRACT:

In the ecological studies of the rodent reproduction, the male reproductive intensity has often been neglected, because it lacks reliable indexes as those revealed in the females. A new method of study was presented here, which is based upon the analysis of the dynamics of male reproductive intensity by means of scattered diagrams of correlation between the testicular length (or seminal vesicle) and the body weight (Figs. 1 & 2). These diagrams demonstrate that there are three different stages of testicular growth. (1) Rudimental stage: at this stage the testis length shows no significant change, though the body weight is rapidly increasing; (2) growth stage: testis length increases proportionally to the increase of the body weight and (3) mature stage.

AUTHOR: LU Yun-ming [0712 6663 2494]
FANG Shao-tz'u [2455 4801 1964]
WENG Yung-t'ai [5040 3057 3141]
HUANG Ts'ang-p'ing [7806 3318 5493]
CH'EN Chia-lu [7115 1367 1774]

ORG: All of the Department of Physiology, Ch'ing-tao Medical College

TITLE: "Vagus-Pituitary Pressor Response After Extirpation of Adrenals"

SOURCE: Peking TUNG-WU HSUEH-PAO [ACTA ZOOLOGICA SINICA] in Chinese Vol 23 No 2, Jun 77 pp 201-206

EXCERPT FROM ENGLISH ABSTRACT:

It has been shown that the stimulation of the afferent vagi in a dog with its neck crushed leaving only the main vascular connexions intact gives rise to a pressor response in the trunk which may be prevented either by interrupting the stalk of the pituitary or by removing the pituitary gland (Chang *et al.*, 1937 b) Further, the oxytocic (Chang, *et al.*, 1938) and the glucogenic effect (Hsieh, 1938) can also be reflexly released by the vagus.

[continuation of TUNG-WU HSUEH-PAO Vol 23 No 2, 1977 pp 201-206]

In the experiments with the normal intact animals (dog, cat, goat, pig), or autoperfused-head preparations, it has been confirmed that stimulation of the central end of the vagus can reflexly liberate pitressin and adrenaline, as evidenced by the pressor response which disappears after hypophysectomy and adrenalectomy (Lü, *et al.*, 1965).

AUTHOR: KU Kuo-yen [7357 0948 1750]
LIU Li [0491 7812]
LI Mei-fang [0632 2734 5364]
HUNG Lung-sheng [3163 7893 3932]

ORG: All of the Institute of Experimental Biology, Shanghai

TITLE: "Electrophoretic Behavior and Invasion of the Drug Resistant Sublines of Ehrlich Ascites Tumor Cells"

SOURCE: Peking TUNG-WU HSUEH-PAO [ACTA ZOOLOGICA SINICA] in Chinese Vol 23 No 2, Jun 77 pp 207-211

EXCERPT FROM ENGLISH ABSTRACT:

Ehrlich ascites tumour cells became resistant to actinomycin D (AD), Vinblastine (VLB) and 5-Fluorouracil (5-Fu) after prolonged treatment *in vivo* with these drugs. Their electrophoretic behaviour, total surface charge, PO₄ group, NH₂ group and SH group are all shown in table 1.

Electrophoretic mobility (as contributed by the total cell surface charges) of cells of VLB-resistant subline was significantly lower and those of AD- and 5-Fu-resistant sublines were significantly higher than that of sensitive one. This seems to suggest that there is no correlation between drug resistance and electrophoretic behaviour. The mobility of cells of AD-resistant subline remained the same after the interruption of the drug for over half a year. This resembles the situation found in sarcosine-resistant subline previously described (Ku and Liu, 1965).

AUTHOR: CH' IEN Kuo-chen [6929 0948 2823]
WANG P'ei-ch'ao [3769 1014 3390]

ORG: Both of Shanghai Normal University, Shanghai

TITLE: "Preliminary Observations on the Development of Thermoregulatory Mechanism of Some Bird Species"

SOURCE: Peking TUNG-WU HSUEH-PAO [ACTA ZOOLOGICA SINICA] in Chinese Vol 23 No 2, Jun 77 pp 212-218

TEXT OF ENGLISH ABSTRACT:

In the present paper, the development of thermoregulative mechanism in young birds of three different species was studied. Two of these species, whose young hatched relatively naked and without the thermoregulatory ability may be regarded as temporarily poikilothermal, are of the altricial type. The third species in which young hatched with good covering of down and thus with relatively stable thermoregulatory ability is of the precocious type. During the course of developing thermoregulatory mechanism, a series of physiological and biochemical changes, leading from a state of quantitative changes to that of a qualitative change, occur in the body of nestlings. In case of altricial birds, the feather-cover always develops later than the formation of thermoregulative mechanism. Evidently, to maintain a constant body temperature, the feather-cover, though important, plays only a complimentary role.

[continuation of TUNG-WU HSUEH-PAO Vol 23 No 2, 1977 pp 212-218]

On the one hand, any bird species develops during ontogeny toward homeothermy; while on the other, it loses at the same time the ability of endurance for hypothermy. These are the two opposites of contradiction. In solving the contradiction, the feather-cover certainly plays an important role. This appears to be the case in all bird species on the whole. But at what stage in the development of the nestlings does the feather cover become so fully developed as to play a thermo-isolative role. There are differences in different bird species in accordance with their specifically physiological and ontological conditions. This seems to have a practical significance in poultry breeding, when special attention is paid to the selection of certain varieties, in which the regulatory mechanism of constant body temperature is completed earlier than in certain other varieties during their development.

AUTHOR: None

ORG: Section of Parasitology, Tsun-yi Medical College, Kuei-chou

TITLE: "Experimental Transmission of Periodic Brugia malayi to Meriones unguiculatus"

SOURCE: Peking TUNG-WU HSUEH-PAO [ACTA ZOOLOGICA SINICA] in Chinese Vol 23 No 2, Jun 77 pp 219-229

EXCERPT FROM ENGLISH ABSTRACT: The need to establish a susceptible, small and readily available rodent model for the study of filarial worms parasitic in man has been repeatedly stressed. In our laboratory, experiments have been conducted since 1973, to infect the laboratory-bred Meriones unguiculatus, originally trapped from the grasslands of the Inner Mongolian Autonomous Region, with periodic Brugia malayi obtained from an endemic area of Malayan filariasis in Kuei-chou Province. Transmissions were performed by both intraperitoneal injection and subcutaneous injection in the inguinal region with counted larvae at the infective stage from Anopheles sinensis and by direct intraperitoneal transfer of known paired adult male and female worms from worm-positive birds. The chief results are summarized.

8650

CSO: 4009

- END -